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EXAMINER
VO, TED T

ART UNIT	PAPER NUMBER
2191	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/967,093	BRANNOCK ET AL.
	Examiner	Art Unit	
	Ted T. Vo	2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 March 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-29</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-6,8-13,15-25 and 27-29</u> is/are rejected.

7)☒ Claim(s) <u>7, 14, 26</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is in response to the amendment filed on 03/06/2006.

Claims 1-29 are pending in the application.

Response to Amendment

2.   Applicants' amendment and arguments have been fully considered, but are not persuasive.

First of all, it should be noted that the concept using writable memory such as a RAM or a Flash memory in order to store update code is well known and common in the art. This specification describes nothing but the same concept. Claims 1, 9, 18, 21, clearly recite such a known concept as mentioned, where Applicants replied only on "atomically" and alleged that IBM fails to disclose the claims.

Firmware is known as hard code that cannot be modified. When this code is defected or needs to update, there is one way to modify it that is to redirect the execution to a potion of soft code stored in a writable memory. Since RAM, or Flash memory, etc., is accessible memory, modified code can store in it. This concept is very old and mentioned by IBM. The functionality in Claims 1, 9, 18, 21 does the same, i.e., "...*modifying firmware configuration data in the firmware storage device to indicate the updated firmware data is to be used in place of the existing portion of platform firmware*".

Furthermore, Examiner finds that nowhere in Applicants' arguments they point out if their claims are patentably distinct from the functionality in the IBM teaching, except replying only on a very abstract language "atomically".

The functionality of the recitation, *"atomically" modifying firmware configuration data in the firmware storage device to indicate the updated firmware data is to be used in place of the existing portion of platform firmware,* is merely to indicate what the updated firmware data is to be used in place of the existing portion. In IBM, it loads update firmware into a flash memory, e.g., "when the firmware is updated, only the sectors contained in the .IMG files are program" (p.67).

The functionality of the recitation, *"data that is being updated such that only the existing portion of platform firmware data are valid prior to the atomic modification of the firmware configuration data and only the updated firmware data are valid after the atomic modification to the firmware configuration data"*, is not patentable from IBM firmware validation. See IBM, "Once loaded, the image is examined to ensure it is valid firmware image" (*valid prior to the atomic modification*), "Flash table/system ID structure, file length and CRC are verified (*atomic modification of the firmware configuration data*) (p. 67). And see items 1, 2, 3, 4 (p. 67), and other sections and Figures, IBM appears describing an atomically modifying where this modifying is performed only after the loaded firmware are valid; otherwise, the updating is a waste process.

All Applicants arguments have been considered but they are not persuasive as above reasons.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   Claim 1-6, 8-13, 15-25, 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by IBM, "A Technical Introduction to PCI-Based RS/6000 Servers", 1996.

Given the broadest reasonable interpretation of followed claims in light of the specification.

As per Claim 1: IBM discloses a *method for updating an existing portion of platform firmware data,*

With regards to the limitation,

writing updated firmware data that is to replace the existing portion of platform firmware data to a firmware storage device in which the existing portion of firmware is stored

See sec. 4.4.3, (p.67) IBM discloses writing update firmware to replace an existing firmware in a ROM (defined as first code in sec. 4.2.1, p.56) or in the sectors in the NVRAM that is later updated. The PCI-Based RS/6000 is such a platform firmware data.

With regards to the limitation

atomically modifying firmware configuration data in the firmware storage device to indicate the updated firmware data is to be used in place of the existing portion of platform firmware data that is being updated such that only the existing portion of platform firmware data is valid prior to the atomic modification of the firmware configuration data and only the updated firmware data is valid after the atomic modification to the firmware configuration data

First of all, the Figures in the IBM's reference (such as Figure 24 (p.63)) show firmware configuration data. IBM discloses atomically modifying firmware configuration data where firmware data is loaded only onto firmware sectors in the memory (See p. 58, Figure 20, an NVRAM, and see p. 61, Figure 22, showing mapped Memory structure of RR/6000 where firmware is stored). The firmware in the sectors is examined (valid) and whether it needs to update (sec. 4.4.3, p.67).

As per Claim 2: Regarding limitation: *The method of claim 1, further comprising performing an integrity check of the updated firmware data to verify that the updated firmware data is valid.*, IBM provides CRC check (See sec.4.4.4, p.68)

As per Claim 3: Regarding limitation: *The method of claim 1, wherein the updated firmware data is written to the firmware storage device in a manner in which the updated firmware data is invisible to a firmware management system used to access firmware data stored on the firmware storage device until the atomic modification of the firmware configuration data has been made.*, IBM remains teach this claimed limitation because all code stored in a storage is invisible to its System Management Service unless it is visually accessed by a tool editor.

As per Claim 4: Regarding limitation: *The method of claim 1, further comprising enabling a full recovery of the existing portion of firmware data that is to be updated during an upgrade process in response to a system anomaly that prevents completion of the upgrade process.*, IBM provides Firmware recovery (See sec. 4.4.4, p. 68).

As per Claim 5: Regarding limitation: *The method of claim 1, further comprising deleting the existing*

portion of platform firmware after it has been upgraded., IBM remains teaching this limitation because the

means of update is to replace the unwanted code. Therefore the code must be discarded. As seen in the

sec. 4.4.3, (p.67), updated firmware is loaded onto sectors that have original firmware, or using the clean-

up.

As per Claim 6: Regarding limitation: *The method of claim 1, wherein the existing platform firmware data*

and the updated firmware data respectively comprise one or more firmware files, each firmware file

including header data that are modified during the update process to track a current state of that file.

See the structure of the Boot image (Figures 22, 24, that present firmware files), having header.

As per Claim 8: Regarding limitation: *The method of claim 1, wherein the firmware storage device*

comprises a flash memory device.

Flash memory device is only a memory, all the memory such as NVRAM is includes this feature. For

example, IBM (p. 67, sec 4.4.3) says "Firmware Flash Update", in sec. 4.4.4, it says "to rewrite the Flash

memory".

As per Claim 9: IBM discloses *a method for atomically updating a plurality of existing platform firmware*

files:

With regards to limitation:

creating a temporary file in a firmware storage device in which the existing platform firmware files are

stored; (See definition Firmware in section 4.2.1: Active RAM area: '*creating a temporary file in a firmware*

storage device');

writing data corresponding to a plurality of updated platform firmware files comprising new versions of the

plurality of existing platform firmware files to the temporary file; (See definition Firmware in section 4.2.1:

See sec. 4.4.3, (p.67) and 4.4.4, IBM discloses writing update firmware into a flash memory to replace an

existing firmware (defined as first code in sec. 4.2.1, p.56) in the platform firmware data such as the PCI-

Based RS/6000.

and atomically modifying platform firmware file configuration information to indicate that the updated

platform firmware files are to be used in place of the existing platform firmware files such that only the

existing platform firmware files or only the updated platform firmware files are valid at any point in time

during an update process.

IBM's reference (such as Figure 24 (p.63)) shows firmware configuration data such as in the memory

structure. IBM discloses atomically modifying firmware configuration data where firmware data is loaded

only onto firmware sectors in the memory (flash memory)(See p. 58, Figure 20, an NVRAM, and see p.

61, Figure 22, showing mapped Memory structure of RR/6000 where firmware is stored). The firmware in

the sectors is examined (valid) and whether it needs to update (sec. 4.4.3, p.67).

As per Claim 10: IBM discloses

each platform firmware file comprises a file header and a data area in which platform firmware data

corresponding to that file is written, and wherein each file header includes a plurality of state bits that are

used to track a current state of each platform firmware file during the update process.,

in the Boot image structure (Figures 20, 22, 24, that present firmware files), having a "header" partition

table that is used in order to track the firmware in the sectors.

As per Claim 11: IBM discloses.

wherein the temporary file is created by creating a file header that identifies the temporary file includes a

data area that is sized to hold all of the updated platform firmware files, said data area being mapped to a

memory area on a firmware storage device that is used to store the existing and updated platform

firmware files. See definition "Firmware" in section 4.2.1 and see the "header" partition table (Figures 22,

24) that is used in order to track and to locate valid firmware in the sectors

As per Claim 12: IBM discloses. *The method of claim 11, further comprising changing a state bit in the*

temporary file's file header to indicate that the temporary file is invalid after data corresponding to the

updated platform firmware files are written to the data area of the temporary file.

See IBM definition "Firmware", Original firmware is stored in the ROM that is read only. The table header

is located in a flash area and used to locate the valid firmware. Therefore, every firmware updated code

must not be in the ROM, where the header is used to locate the updated firmware in the RAM or in a flash

memory, rather than the code in the ROM.

As per Claim 13: Regarding,

a file system is used to access the platform firmware files and the updated firmware files appear invisible

to the file system prior to when the state bit is changed and become visible to the file system after the

state bit is changed.,

IBM remains teach this claimed limitation because all code stored in a storage is invisible to its System

Management Service unless it is visually accessed by a tool editor for modifying.

As per Claim 15: Regarding, *further comprising performing an integrity check of the updated platform*

firmware files to verify that the updated firmware files are valid prior to atomically modifying the platform

firmware file configuration information to indicate that the updated platform firmware files are to be used in

place of the existing platform firmware.,

IBM provides CRC check.

As per Claim 16: Regarding, *The method of claim 9, further comprising enabling a full recovery of the*

existing platform firmware files that are to be updated during the upgrade process in response to a

system anomaly that prevents completion of the upgrade process.

IBM provides recovery as shown in the rationale related to the rejection of Claims 1-6, 8.

As per Claim 17: Regarding, *The method of claim 10, further comprising setting the state bits in each file*

header of the existing platform firmware files to indicate the file is deleted after the upgrade process has

been complete.

IBM provides clean-up as shown in the rationale related to the rejection of Claims 1-6, 8.

As per Claim 18: The functionality in Claim 18 is corresponding to the limitation recited in Claim 1. See

rationale addressed in Claim 1 above.

As per Claim 19: The functionality in Claim 19 is corresponding to the limitation recited in Claim 2. See

rationale addressed in Claim 2 above.

As per Claim 20: The functionality in Claim 18 is corresponding to the limitation recited in Claim 4. See

rationale addressed in Claim 4 above.

As per Claims 21-25, 27-29: Each functionality in Claims 21-25, 27-29 is corresponding to the limitation

recited in Claims 9-13, respectively. See rationale addressed in Claims 9-13 above.

Allowable Subject Matter

5.   Claims 7, 14, 26 remain allowable as given in the prior action.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted T. Vo whose telephone number is (571) 272-3706. The examiner can normally be reached on 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708.

The facsimile number for the organization where this application or proceeding is assigned is the Central Facsimile number **571-273-8300**.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ted T. Vo
Primary Examiner
Art Unit 2191
June 09, 2006